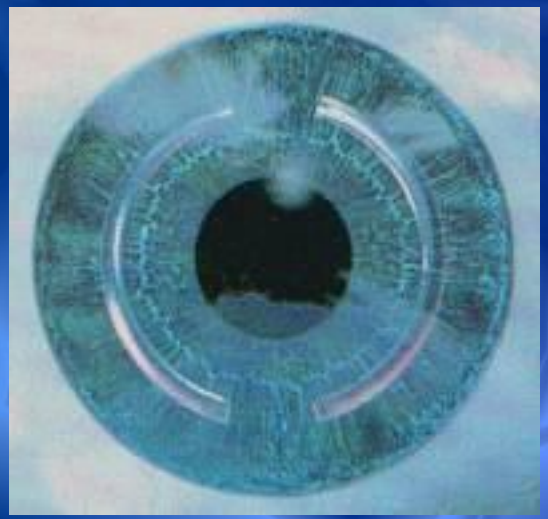
Sight Conservation and Eye Safety

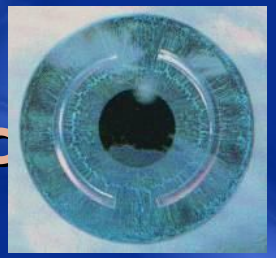
LG #5

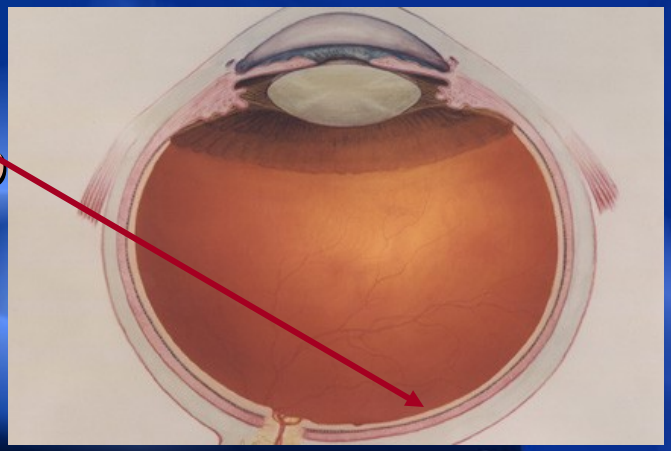
A. Your Eyes' Defenses



Defenses

- Tears
  - Self-cleans the eyes of foreign material
- Eye lid
  - Physical barrier to some objec
- Cornea
  - Damaged ones can now be replaced
- Inner eye (retina)
  - Damage is irreversib





B. Types of Eye Injuries

Foreign Bodies

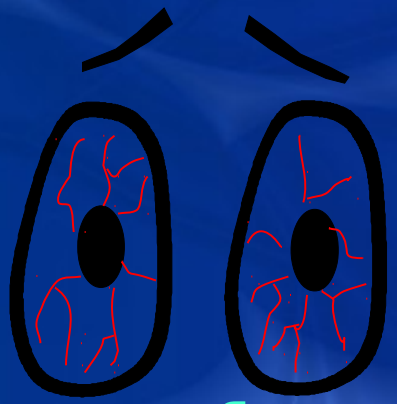
- Most common of injuries
- Abrasions & Scratches
  - Can cause permanent scar tissue
- Contusions from large objects
- Irritations from fibers
- Particles in smoke or fumes

Chemical Burns

- **Acids**
  - Precipitate a protein barrier preventing further penetration into tissue
  - Burn the surface of the eye and cause scars
- **Bases (alkalies)**
  - Damages tissue as long as there is contact
  - Dissolves fat-soluble tissue, turning it into “jelly”
- **Acids and Bases are both CORROSIVE**

Chemical Burns

- Gases in air can burn or irritate
- Vapors and mists can irritate and produce scarring
  - Paints
  - Pesticides
  - Cleaners



- In the Navy, the most frequent eye injuries result from handling fuels without eye protection

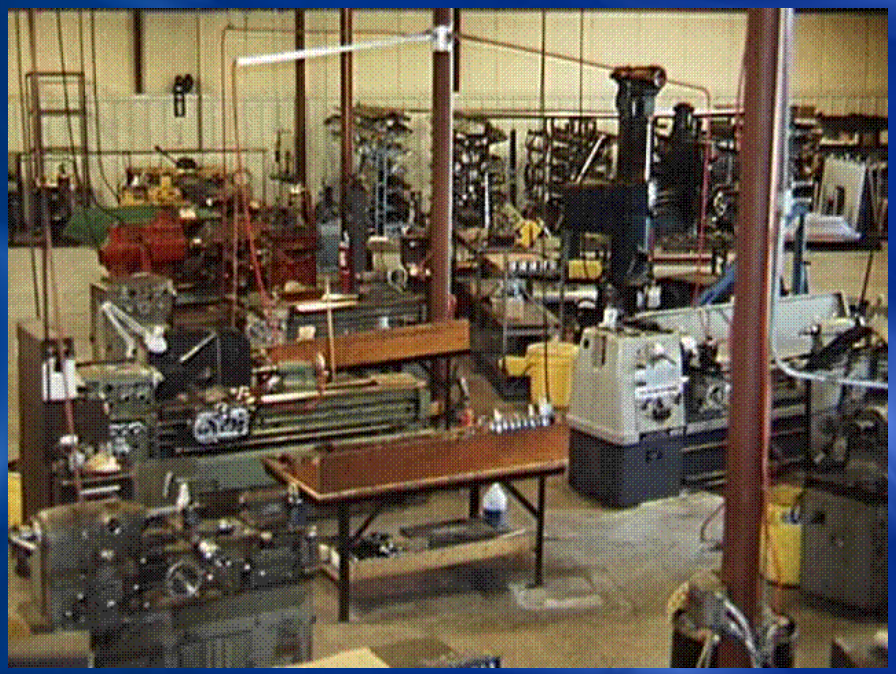
Irradiation Burns

- Infrared light (heat lamps)
  - Passes through cornea-absorbed by lens
- Ultraviolet light (sun, welding)
  - Causes flash burns
  - Delayed effects (4-6 hrs. after exposure)
- Infrared and Ultraviolet light can cause permanent eye damage

C. Navy Sight Conservation Program Elements

Program Elements

- **Identify eye hazards**
  - **Survey all work areas to determine potential eye hazardous areas**



Program Elements

- Eliminate hazards by engineering controls
  - Eliminate hazards completely, where possible
  - Reduce eye hazards
    - Guards
    - Isolation of the process
    - Substitution of a less hazardous chemical

Program Elements

- **Post eye hazardous areas**
  - Label all areas and pieces of equipment which are potentially hazardous
  - Use yellow & black caution signs:
    - to warn of eye hazard areas
    - to specify eye protection required
  - Mark the areas around eye hazards with yellow and black striping or checkerboard tape on the deck

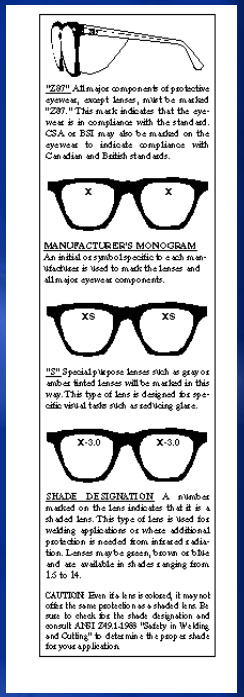
Program Elements

- **Provide protection**
  - Where hazards can’t be eliminated or reduced, PPE is required
  - Navy must provide all protective equipment
  - Protection must be specific to the job
  - Safety Officer will determine types to be worn
  - Medical provides eye exams and screening:
    - for corrective needs
    - for personnel working around radiation sources

D. Eye Protection--Personal Protective Devices

Must Meet ANSI Standards

- Each manufacturer's glasses or goggles must be tested and approved
- Testing includes:
  - Impact
  - Permeability
  - Shatter proofing
  - Frame breaking strength
- Only ANSI approved eyewear may be used by Navy personnel
  - Must have "Z87" stamp



Devices Designed for Specific Hazards

- Six general types of protective eyewear
  - Safety glasses/spectacles
  - Chemical goggles
  - Welding goggles
  - Chipping goggles
  - Welding helmets
  - Face shields
- Wear the right type!! Wearing the wrong type can be dangerous

Wearing Protective Devices

- Wear double protection for acids and bases
  - Chemical goggles AND face shield !
- Face shields MUST be worn with safety glasses or goggles
  - Face shields may not be worn by themselves
- When working with UV light, wear protection based on level of light intensity
  - NO sunglasses!!

Wearing Protective Devices

- Navy will provide prescription safety glasses
  - See Safety Officer or MDR
- Regular prescription glasses CANNOT be worn as safety glasses
- Keep devices clean
- Discard if badly scratched or damaged

E. Emergency Eye Wash Stations

Emergency Eye Wash Stations

- Must flush with fresh water for minimum of 15 minutes
- Flushing is used to:
  - Remove foreign objects
  - Dilute strong chemicals
- Required wherever
  - Corrosives are used (battery shops)
  - Particulate hazards exist (machine shop)

Eye Wash Requirements

- Must meet ANSI standards
- Must provide continuous water flow
- Activated by one hand or foot motion
- Both hands free to hold eyes open (valve must stay open)
- May be combined with deluge shower for full body chemical first aid

Eye Wash Styles

- Plumbed into ship's potable water system
- Portable, pressurized tank-type
- Gravity-fed portable self-container
- All covered by weekly or monthly PMS

e: OPNAVINST 5100.19 (series), Chapter B5 provide
complete list of compartments and processes requi
an eye wash or deluge shower.

F. Program Enforcement

Enforcement

- Personnel working in eye hazardous areas MUST wear eye protection
- Supervisors must set the example
- Visitors/guests provided with eye protection
- Some sports (racquetball) are hazardous. Wear sport goggles
- Encourage personnel to wear eye protection at home (hobbies/lawn work)

G. Eye Injury First Aid

First Aid

- Never rub eyes to remove particulates
- Chemical burns
  - Flush for 15 minutes (minimum)
  - Get medical attention!
- Punctures and trauma
  - Cover with a clean, soft cloth
  - Get medical attention!

First Aid

- Report ALL minor cuts and eye problems to medical
  - Minor scratches may lead to potential infections with resulting scar tissue formation, loss of sight, or other significant damage